

REMARKS

I. CLAIM WORDING OBJECTIONS

The wording of the preamble of claim 1 which stated that the control unit was ... “especially for a microscope” was objected to, for indefiniteness.

The wording of the preamble of claim 1 was changed to state that the control unit is ... “for a microscope, a stereomicroscope, a macroscope or an industrial image processing machine”. This wording is based on the description of the field of the invention on page 2, lines 3 to 5, of the applicants’ originally filed specification. This wording is not indefinite because the term “especially” is not used and because the wording states four intended uses for the claimed control unit in the alternative using “or”. Use of the term “or” in claims has been found to be acceptable and does not lead to indefiniteness according to M.P.E.P. 2173.05(h) Alternative Limitations.

The same preamble wording is now used in the amended independent claims 13, 15, 22, and 24. It is also used in new independent claim 28.

On the other hand, amended independent claim 19 states that the control unit is... “for a microscope or stereomicroscope”. The basis for this change in the preamble of claim 19 is also on page 2, lines 3 to 5, of the applicants’ specification.

New independent claim 29 states that the control unit is... “for an industrial image processing machine”. New independent claim 29 states that the control unit is... “for a stereomicroscope”. The basis for these latter preambles is of course page 2, lines 3 to 5, and p. 14, line 9, of the applicants’ specification.

Otherwise claims 29 and 30 contain the same features as amended claim 1.

II. ALLOWABLE SUBJECT MATTER

Claims 13 to 16 and 22 to 25 were only objected to on page 4 of the Office Action, but would be allowed if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

See page 4 of the Office Action.

Dependent claims 13, 15, 22, and 24 each depended on claim 1. These dependent claims have each been amended by including the features and limitations of claim 1. Dependent claims 14, 16, 23, and 25 depend on claims 13, 15, 22, and 24 respectively.

For the foregoing reasons allowance of amended claims 13 to 16 and 22 to 25 is respectfully solicited.

III. OTHER CLAIM CHANGES

Claims 1 and 19 were amended to limit the control unit to a control unit

that controls respective parts of at least three lighting units (instead of only at least two lighting units). This limitation also is present in new independent claims 29 and 30. The control unit of claim 1 or 19 must control a minimum of three lighting units, such as the incident light-bright field illumination, the incident light-dark field illumination, and the transmitted light illumination as claimed in the new dependent claim 26, which depends on claim 1.

The basis for the changes in claims 1 and 19, the wording of new claims 29 and 30, and also new dependent claim 26, is found in the description of the preferred embodiment on page 11 of the applicants' specification. The preferred embodiment includes a control unit (fig. 1) that controls three lighting units 6, 7, and 8.

Dependent claim 2 was amended to provide a wording that conforms to the changed wording of claim 1 and to avoid possible indefiniteness rejections.

New independent claim 28 limits the respective parts of each lighting unit to a plurality of individual light sources, which are controlled individually by the control unit during the controlling of each lighting unit. However new independent claim 28 is not limited a control unit that controls three or more lighting units. The control unit of claim 28 controls at least two of the plural lighting units, but controls the individual light sources in each lighting unit individually during the controlling. For example, when the individual light sources are the LEDs of the circular ring light of fig. 2 of applicants' specification, the individual LEDs may be controlled to simulate rotating light source.

IV. ANTICIPATION BASED ON REMER, ET AL

Claims 1 to 7 and 9 to 12 were rejected as anticipated under 35 U.S.C. 102 (b) by Remer, et al (US Patent 5,559,631).

Remer, et al, does disclose an apparatus for controlling lighting units of a microscope illumination system. The apparatus has two light sources 4, 5 (which are identified as the lighting units in the Office Action). The light from light source 4 is filtered with filter 6. A partially surface mirror 7 mixes the light from the two light beams. A regulating circuit 8 is provided to control the currents through the two light sources 4, 5 so that the color temperature and brightness of the mixed light beam is controlled, so that the brightness of the mixed light beam is kept constant while the color temperature of the light beam is varied or so that the color temperature of the light beam is kept constant while its brightness is varied (claim 1). The apparatus can be interfaced with a computer 16. A memory unit 23 is provided in the regulating circuitry 8 for prescribed current values for the light sources.

However the regulating circuit of Remer, et al, performs a specific type of regulating function as described above, while the applicants' control unit according to claim 1 performs an **arbitrary** adjustment or regulating operation on respective parts of **three** or more lighting units. A primary advantage of the applicants' control unit is that it centralizes a number of control functions that are separate in the prior art in a single compact controller.

Furthermore the regulating circuit of Remer, et al, only controls two “lighting units”, a main light source and a secondary light source -- according to claim 1 of Remer, et al. There is no wording in the disclosure of Remer, et al, which suggests that the apparatus could be used to control more than two lighting units or the individual light sources of a lighting unit with plural light sources like the LEDs of the ring light of applicants’ figure 2. There is no teaching regarding the manner in which the apparatus of Remer, et al, would be modified to control three or more light sources or lighting units.

As to claims 3 to 6, Remer, et al, only disclose storing process variables, such as current, in their memory (see column 3, lines 25 to 30) in the regulating device 8 (corresponds to applicants’ control unit 1). Remer, et al, do not disclose storing “user commands” in the memory unit. A user command would be understood by one skilled in the art to be a digital computer processor word or words, which are sent to some type of processor in the lighting units and activate certain actions in the lighting units (see the first paragraph of page 12 of applicants’ specification). The user command is different from an analog operating variable or parameter, such as current passing through the light source. In other words, the control unit 1 of the applicants’ operates by sending a user command to the individual lighting unit instead of a current. The reason for that is that preferred embodiments of the lighting units of the applicants do not comprise one single light source, but instead comprise a plurality of individual light sources, such as LEDs, which must be controlled in a synchronized and coordinated fashion (see fig. 2).

It is well established that each and every limitation of a claimed invention must be disclosed in a single prior art reference in order to be able to reject the claimed invention under 35 U.S.C. 102 (b) based on the disclosures in the single prior art reference. See M.P.E.P. 2131 and also the opinion in *In re Bond*, 15 U.S.P.Q. 2nd 1566 (Fed. Cir. 1990).

For the foregoing reasons and because of the changes in amended claim 1, withdrawal of the rejection of claims 1 to 7 and 9 to 12 as anticipated under 35 U.S.C. 102 (b) over Remer, et al, is respectfully requested.

New independent claims 29 and 30 also claim a control unit for three or more lighting units.

In addition, Remer, et al, does not disclose a control unit as claimed in new independent claim 28. Remer, et al, does not disclose that the lighting units 4, 5 each comprises a plurality of individual light sources (respective parts), such as the LEDs of the ring light of applicants' fig. 2. Remer, et al, does not disclose a control unit with means for simultaneously controlling each of a plurality of light sources of at least two of the lighting units 4,5, for example to simulate a rotating light source.

For the foregoing reasons it is respectfully submitted that new claims 28 to 30 should not be rejected as anticipated under 35 U.S.C. 102 (b) over Remer, et al.

V. OBVIOUSNESS BASED ON REMER, ET AL

Claims 8 and 17 to 21 were rejected as obvious under 35 U.S.C. 103 (a) over Remer, et al.

Claim 17 has been canceled, obviating its rejection as obvious over Remer, et al.

Independent claim 19 has been amended in the same manner as claim 1 so that the control unit is limited to controlling **three** or **more** lighting units.

Remer, et al, does disclose that the regulating apparatus 8 (control unit) has a memory (that is within the control unit) in which prescribed current values for the light sources (lighting units) are stored in column 3, lines 25 to 30. However Remer, et al, does **not** teach or suggest that general user control commands are storable and retrievable in the memory unit. In other words, the memory that is within the control unit in the apparatus of Remer, et al, has a much more limited function than applicants' memory for control commands of many different types. This is explained in more detail above in connection with the anticipation rejection.

It is well established by many U. S. judicial decisions that to reject a claimed invention under 35 U.S.C. 103 there must be some hint or suggestion in the prior art of the modifications of the disclosure in a prior art reference or references used to reject the claimed invention, which are necessary to arrive at the claimed invention. For example, the Court of Appeals for the Federal Circuit

has said:

"Rather, to establish obviousness based on a combination of elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant...Even when obviousness is based on as single reference there must be a showing of a suggestion of motivation to modify the teachings of that reference.." *In re Kotzab*, 55 U.S.P.Q. 2nd 1313 (Fed. Cir. 2000). See also M.P.E.P. 2141

With respect to both claims 1 and claim 19 Remer, et al, do not disclose or suggest a control unit for simultaneously controlling **three** or more lighting units. Furthermore Remer, et al, does not disclose how to modify their control unit (regulating unit) to handle three or more light sources. This amounts to lack of an enabling disclosure for controlling three or more light sources. It is not simple to do this for multiple light sources because there is a "degeneracy" problem. For a fixed brightness level when only two light sources are present and one has a fixed brightness, the brightness value of the other light source is fixed. However if a third light source is present there are multiple ways to set the brightness of the remaining two light sources when the brightness of a first light source is fixed when the brightness level corresponding to the sum of all three must be kept constant.

With respect to claim 19 only Remer, et al, does not teach a memory unit in which command statements (not operating variables) are storable and retrievable, as claimed in claim 19, and which are sent to the lighting units. The control unit of applicants' has more general operating and adjusting possibilities.

Claim 18 has been amended to depend on claim 19.

For the foregoing reasons and because of the changes in amended claims 1 and 19 withdrawal of the rejection of claims 8 and 18 to 21 as obvious under 35 U.S.C. 103 (a) over Remer, et al, is respectfully requested.

With respect to new claim 28 Remer, et al, do not disclose or suggest that the “lighting units” 4, 5 comprise individual light sources, such as LEDs, which are individually controllable by the control unit or a control unit with means to control the lighting units e.g. to simulate a rotating light source, by controlling and synchronizing the individual LEDs in each lighting unit.

Furthermore it is respectfully submitted that none of the new claims 26 to 30 should be rejected under 35 U.S.C. 103 (a) as obvious over Remer, et al.

VI. CHANGES IN THE ABSTRACT AND SPECIFICATION

An amended (essentially a new) abstract has been provided. The amended abstract includes the features that are considered to distinguish the claimed invention from the prior, which were mentioned on page 4 of the Office Action.

The specification has been checked and corrected for a number of grammatical, translation, and syntax errors.

Should the Examiner require or consider it advisable that the specification, claims and/or drawing be further amended or corrected in formal respects to put this case in condition for final allowance, then it is requested that such amendments or corrections be carried out by Examiner's Amendment and the case passed to issue. Alternatively, should the Examiner feel that a personal discussion might be helpful in advancing the case to allowance, he or she is invited to telephone the undersigned at 1-631-549 4700.

In view of the foregoing, favorable allowance is respectfully solicited.

Respectfully submitted,

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